Supporting Information

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Enhanced Signals and Fast Nucleic Acid Hybridization Using Microfluidic Chaotic Mixing**

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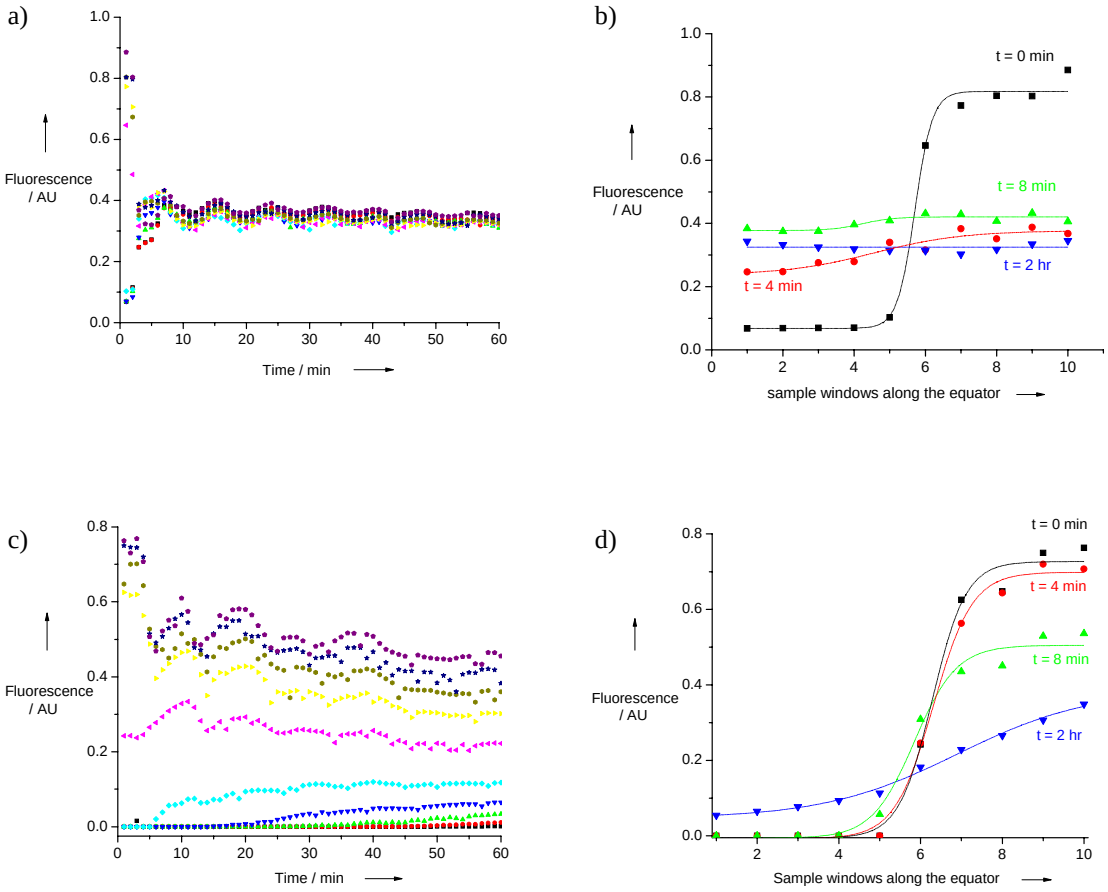

Supplementary Fig.5 Evaluation of mixing efficiency of two different devices with (a&b)/ without (c&d) the herringbone indentations in the bridge channels. A solution containing 0.1μ fluorescent beads and a blank solution were loaded into the chambers with a pattern similar to Fig.1b. Ten windows along the equator of one chamber were specified to monitor the fluorescent intensity changes in real-time. Fig.5a (with chaotic mixing) and Fig.5c (without chaotic mixing but with circulation) compare the fluorescent changes of these windows in the time course. Fig.5b and Fig.5d show

different gradient curves at four specified moments (0 min, 4 min, 8 min, 2 hours). Chaotic mixing is much more effective at eliminating heterogeneity in the solution than simple circulation. The Stokes-Einstein diffusion coefficient of 0.1 μ beads was estimated to be $4.4 \times 10^{-8}\ cm^2 s^{-1}$, within the comparable range of DNA molecules (1k bp).